U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 2

December 17, 2018

BY ELECTRONIC MAIL

Robert Law, Ph.D.
de maximis, inc.
186 Center Street, Suite 290
Clinton, New Jersey 08809

Re: Re: Lower Passaic River Study Area Draft Remedial Investigation Report – Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study (Agreement) CERCLA Docket No. 02-2007-2009

Dear Dr. Law:

The U.S. Environmental Protection Agency (EPA) has reviewed the *revised draft Executive Summary* of the Remedial Investigation (RI) Report, prepared by Anchor QEA on behalf of the Cooperating Parties Group (CPG) for the Lower Passaic River Study Area (LPRSA). The *Executive Summary* files (text and figures) were received from the CPG on October 1, 2018. Comments from partner agency New Jersey Department of Environmental Protection (NJDEP) were received on November 2, 2018 and are incorporated into the comments below. In accordance with Section X, Paragraph 44(d) of the Agreement, EPA has enclosed an evaluation of CPG's revised RI Report with this letter.

Please proceed with revisions to the draft RI Report within 30 calendar days consistent with the enclosed comment evaluations. If there are any questions or clarifications needed on EPA's enclosed comment evaluations, please contact me to discuss.

Sincerely,

Diane Salkie, Remedial Project Manager
Lower Passaic River Study Area RI/FS
Enclosure

Cc: Zizila, F. (EPA)
Sivak, M. (EPA)
Hyatt, B. (CPG)
Potter, W. (CPG)

EPA COMMENTS – NOVEMBER 30, 2018

LPRSA RI/FS, Remedial Investigation Report, Revised Draft Executive Summary, dated October 2018

No.	Section	General or Specific	Page No.	EPA Comment
1	Executive Summary	General	N/A	In April 2016, comments were provided on the draft RI Report (dated February 2015), including the Executive Summary. While it appears that the current version of the Executive Summary has generally been updated in accordance with the CPG's responses to those comments, this is not true for every specific comment. For instance, the Executive Summary does not appear to have been updated consistent with the responses to comments 22b and 28 from the April 2016 comment set. Please ensure that the revisions suggested in responses to the April 2016 comments are all accounted for in the Executive Summary.
2	Executive Summary	General	N/A	The term "LPR" is generally used throughout the Executive Summary but "LPRSA" is used throughout other portions of the RI Report, including Appendix D (BERA). Ensure consistent and appropriate use of these acronyms throughout the RI Report. When defining/discussing the site from an administrative perspective, LPRSA is more appropriate; when describing/discussing investigations and observed conditions in the river between Dundee Dam and Newark Bay, LPR should be used.
3	Executive Summary, first paragraph, second sentence	Specific	ES-1	Revise this sentence to indicate that in 2007, the CPG entered into an AOC to take over the performance of the RI/FS from USEPA to be consistent with how this transition is described in Section 1 of the RI Report.
4	Executive Summary, first paragraph, third sentence	Specific	ES-1	The text reads as follows: "Primary objectives of the RI are to understand the spatial and temporal patterns of contaminants, as well as how select areas of the river that are not recovering inhibit its overall recovery." The portion of this sentence about areas inhibiting recovery sounds more like a conclusion of the RI than an objective. Revise this sentence to state it as an objective (e.g., to characterize the physical and chemical fate and transport processes at the site, including an evaluation of the processes that facilitate and inhibit natural recovery). Furthermore, Section 1.2.2.1 of the RI Report provides the goals and objectives of the RI in accordance with the AOC and SOW. The Executive Summary should either provide the same list of goals and objectives or better summarize that list instead of describing only a few of the RI objectives as the primary objectives. At a minimum, the list of primary objectives in the Executive Summary should also include understanding current and potential future human and ecological risks.
5	Executive Summary, first paragraph, fifth sentence	Specific	ES-1	Add surface water flow regimes and food web dynamics in the list of contributors to the spatial and temporal distribution of contamination in sediment, surface water, and biological tissue.
6	Executive Summary, first paragraph, final sentence	Specific	ES-1	The source control aspect of the LPRSA remedy (i.e., the interim remedy for the upper nine miles of the LPR) is being performed in parallel with the RI, but this does not change the fundamental objective of the RI to document impacts to and facilitate final, risk-based remediation of the entire 17.4-mile LPR. Reword this sentence to read "The knowledge gained provides the understanding needed to craft remediation strategies aimed at mitigating contaminant impacts and ultimately achieving CERCLA-compliant risk-based remedial goals protective of human health and ecological receptors."
7	Section ES.1, footnote 1	Specific	ES-1	Make this footnote consistent with the equivalent footnote from Section 1.2.1 of the RI Report.
8	Section ES.1, first paragraph, ninth sentence	Specific	ES-2	Note the source for the statement about the initially rapid infilling rate of up to 10 cm per year and/or point the reader to the location in the RI Report where it is discussed in greater detail.
9	Section ES.1, second paragraph, second to last sentence	Specific	ES-2	Wetland and mudflat habitats should be uncoupled. Although wetland areas are limited to small patches or isolated areas (due to riverbank development) this is not the case for mudflat areas which are more widespread and present in accordance to natural river hydrodynamics (i.e., 30% of shoreline habitat upstream of RM8 is characterized as mudflat). In addition, for the lower 8.3 miles of the LPR, approximately 100 acres of a total 650 acres (~15%) are either intertidal or subtidal mudflat habitat. Intertidal mudflats and the associated shallow-water subtidal areas are important habitats for estuarine organisms, providing valuable foraging habitat for fish, blue crab and waterbirds (USEPA, March 2016, Lower 8.3 Miles of the LPRSA Record of Decision). Also missing from this paragraph is any acknowledgement of surface water habitat which exists throughout the river (channel and shoals) providing habitat to aquatic-based or aquatic-reliant receptors.
10	Section ES.1, third paragraph	Specific	ES-2	This paragraph diminishes the river's ecological food web by emphasizing characterization as a benthic-dominant community despite the presence of important higher trophic level species of concern. To be consistent with the BERA, and past comments and discussions regarding the benthic invertebrate community, replace the existing paragraph with the following: "The benthic invertebrate community, which forms the base of the ecological food web, is dominated by deposit feeders, filter feeders, and detritivores (Appendix D, Section 2.2.1.3). Fish surveys conducted in 2009 and 2010 indicate that the LPR fish community is primarily benthic-feeding species (Appendix D, Section 2.3.6). The LPR provides a limited and fragmented habitat for avian and mammalian species. Several bird species are observed in the LPR year-round and may breed in nearby areas with suitable breeding and nesting habitat. Gulls, geese, and ducks were the most commonly observed bird species during the four seasonal surveys conducted in the LPR during 2010 and 2011 (Appendix D, Section 2.4.6). No surveys of water-associated mammals were conducted in the LPR, though few mammalian species were noted during the surveys for habitat, avian species, and aquatic biota. It is likely that muskrats and raccoons are present in some areas along the river banks (Appendix D, Section 2.5)."
11	Section ES.1, fifth paragraph, sixth sentence	Specific	ES-3	Text states: "… most notably the RM 10.9 point bar, which was dredged and capped in 2013 and 2014 (excluding the utility corridor)…" Modify to state "… partially dredged". Not all highly contaminated fine silt was removed from this mudflat area. In addition to the noted utility corridor, several feet of contaminated sediment also remain below the engineered cap.

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12	Section ES.1 sixth and seventh paragraphs	Specific	ES-4	Although greater detail will be provided in later RI sections, revisions and clarifications are needed in the Executive Summary to reflect prior comments on the topic of deposition and erosion. Text should clarify if these paragraphs are referring to RM 0 – 17.4 or RM 8.3 – 17.4 and whether, given existing data, a distinction has been observed between the approximate lower 8.3 miles and the upper 9 miles of the river, with regard to erosional and depositional properties. Areas of cyclic erosion and deposition comprise a notable riverbed footprint (+/- 30%) and play an important role in the nearly imperceptible recovery of river surface sediment chemical concentrations to acceptable levels, especially for 2,3,7,8-TCDD; text should be added to the ES to discuss this.
13	Section ES.1, sixth paragraph, first sentence	Specific	ES-4	Define ^{137}Cs and provide some brief discussion, perhaps as a footnote, of how ^{137}Cs is used to evaluate deposition rates.
14	Section ES.1, seventh paragraph, second sentence	Specific	ES-4	The text reads as follows: "It occurs during significant storm events, which redistribute recently deposited and legacy sediments through scour, re-deposition, and migration out of the river." Insert "potential" before "… migration out of the river." Also, please define "It" as erosion, clarify that erosion occurs during more than significant storm events, and indicate that sediment migration can be within and into the river as well as out of the river.
15	Section ES.2	Specific	ES-4 to ES-10	The opening paragraph of the Executive Summary describes general consistency in the distribution of contamination in sediment, the water column, and biological tissue at the LPR, relative to processes within the LPR. However, while Section ES.2 contains a summary of contamination patterns in sediment and at least some discussion of contamination patterns in surface water, it does not describe in any way the occurrence or nature and extent of contamination in biological tissue. Add some summary of the nature and extent of contamination in biological tissue to this portion of the Executive Summary.
16	Section ES.2, second paragraph, second sentence	Specific	ES-5	The text reads as follows: "Concentrations of these contaminants generally correlate with sediment type, as discussed above, although the range of concentrations is large, particularly within fine sediments." Insert "(to varying degrees)" after "…generally correlate…".
17	Section ES.2, Surface Sediment Contaminant Concentration Patterns, first paragraph, first sentence	Specific	ES-5	The text reads as follows: "Surface sediment 2,3,7,8-TCDD concentrations greater than 500 ng/kg are rare upstream of RM 12 and are confined mainly to fine sediment regions that have been influenced by upstream contaminant transport from the lower river, which extends to beyond RM 14." Revise this sentence to read "Surface sediment 2,3,7,8-TCDD concentrations greater than 500 ng/kg have rarely been observed upstream…"
18	Section ES.2, Surface Sediment Contaminant Concentration Patterns, second paragraph, fifth sentence	Specific	ES-5	It is unclear what specific portion of the river is being described in this sentence; add clarification.
19	Section ES.2, Contaminant Transport and Mass Inventory Patterns, second paragraph, third sentence	Specific	ES-7	For consistency, use "mass inventory patterns" instead of "mass patterns".
20	Section ES.2, Contaminant Transport and Mass Inventory Patterns, third paragraph	Specific	ES-7	Figure ES-6 provides a good visual interpretation of the associated 2,3,7,8-TCDD pattern discussion in the text. Figures similar to Figure ES-6 should be provided for the other COCs discussed in this section. If these figures already exist, please identify in the Executive Summary where the reader can find these figures.
21	Section ES.2, Contaminant Transport and Mass Inventory Patterns, third paragraph, first sentence	Specific	ES-7	Amend this sentence to clarify that the remaining 8% of the 2,3,7,8-TCDD mass is present upstream of RM 6.
22	Section ES.2, Contaminant Transport and Mass Inventory Patterns, third paragraph	Specific	ES-8	Please use "reach" instead of "bin", as the concept of dividing the LPR into reaches is described elsewhere in the RI Report and the data are more clearly described this way.
23	Section ES.2, Natural Recovery, first paragraph, first sentence	Specific	ES-8	The first sentence indicates that sedimentation has been effective at reducing concentrations since the 1950s and 1960s, and that the 1950s and 1960s was the era of highest contamination. However, effectiveness is a relative determination, and the 1950s and 1960s is better described as the era when the most substantial releases of contamination occurred. Simply state "Sedimentation has reduced contaminant concentrations in LPR surface sediments since the 1950s and 1960s, when the most substantial releases of contamination occurred".

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24	Section ES.2 Natural Recovery, last paragraph	Specific	ES-9	The discussion of natural recovery should discuss trends in fish tissue concentration and note that fish tissue data collected from the LPR show a large degree of variability which inhibits any definitive conclusions regarding trends in tissue concentrations.
25	Section ES.2, Impact of Background Sources	Specific	ES-9	The second sentence describes "all the contaminants", but it is not clear if this is intended to be COCs or some other subset of contaminants; be more explicit. Also, clarify the statement that mean concentrations of total PCBs, PAHs, mercury, and DDx are similar to those above Dundee Dam and in Newark Bay. Although they are more similar than 2,3,7,8-TCDD, they are for the most part statistically different. The closest value (either higher or lower) is greater than a factor of 1.5 different. Additionally, the discussion on influence of background sources relative to potential recontamination of remediated areas for contaminants other than 2,3,7,8-TCDD (PCBs, PAHs, mercury, DDx) is overly simplified. Although background sources may contribute to recontamination, the in-river legacy sediment contamination also represents a potential ongoing source of these contaminants and may prevent recovery to acceptable levels in sediment, surface water, and biota. Please add text to reflect this.
26	Section ES.3	General	ES-10	This summary of risks should initially include at least a brief overview of the human health and ecological risk assessment methodology, including the COPCs/COPECs, receptors, and exposure pathways evaluated, and the justification for these components of the assessments. Include this summary-level information.
27	Section ES.3, first paragraph, second sentence	Specific	ES-10	Because the section heading is Risks to Human and Ecological Receptors, it is important to specify within the paragraph which is being discussed. Revise the sentence to state, "Direct exposures to surface water and sediment do not pose human health risks in excess…"
28	Section ES.3, first paragraph, third and fourth sentences	Specific	ES-10	It is inaccurate to state that PCBs are present at levels comparable to background. Background PCB risks/hazards are approximately one third of corresponding LPR risks/hazards for the consumption of the mixed fish diet (See RI Section 8.4.3 Background). Revise the third and fourth sentences of this paragraph to read "The primary human health risk drivers are 2,3,7,8-TCDD and PCBs. Other bioaccumulative compounds, including pesticides and mercury, also contribute to elevated human health risk, but to a lesser extent."
29	Section ES.3, first paragraph, fifth and sixth sentences	Specific	ES-10	The fifth and sixth sentences of this paragraph miss a key point: a fish diet without carp and a crab muscle-only diet would still pose elevated risks. The sentences should be removed or, if retained, revised to include that point in a manner consistent with the text on pages ES-14 and ES-15 of the Final HHRA (AECOM 2017).
30	Section ES.3, third paragraph, first sentence	Specific	ES-10	Risks to ecological receptors is not "limited to" the risk drivers listed in this sentence. Replace "limited to" with "primarily driven by exposure to". The identified contaminants have been shown to be the key risk drivers for many ecological receptors in this river, however the risk assessment also determined that other contaminants pose unacceptable risk to ecological receptors. In addition, remove the words "The potential for", because unacceptable risk has been demonstrated through evaluations performed and presented in the BERA.
31	Section ES.3, third paragraph, last two sentences	Specific	ES-10	The final two sentences in this paragraph related to benthic community impairment are unclear as to what information is being summarized, what the information demonstrates (and how), and what the context is in the evaluation of ecological risk. Revise to state: "Some LOEs are stronger than others and should be weighted more heavily when used for management decisions. While there are statistically significant relationships between observed benthic community impairment and sediment chemistry/habitat conditions, the statistical relationships for individual contaminants are not strong."
32	Figure ES-5	Specific	N/A	Replace the RM 10.9 removal footprint with an outline that represents the actual removal footprint and the areas that were excluded from the removal.
33	Figure ES-9	Specific	N/A	Remove "regional" from the y-axis legend as the ratios include both site-specific and regional information. Also, define/describe organic carbon normalization in a legend entry on this figure.

N/A – not applicable